



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/695,655	10/27/2003	Hsien-Chang Lin	JCLA8714	4053

7590 12/11/2006

J.C. Patents  
Suite 250  
4 Venture  
Irvine, CA 92618

EXAMINER
----------

THOMPSON, CAMIE S

ART UNIT	PAPER NUMBER
----------	--------------

1774

DATE MAILED: 12/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/695,655

Applicant(s)

LIN ET AL.

Examiner

Camie S. Thompson

Art Unit

1774

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on Amendment filed on September 21, 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-6, 8-12 and 20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8-12 and 20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

Art Unit: 1774

**DETAILED ACTION**

1. Applicant's amendment and accompanying remarks filed September 21, 2006 are acknowledged.
2. Examiner acknowledges amended claims 1,3 and 8.
3. The rejection of claims 1-6, 8-12 and 20 under 35 U.S.C. 112, second paragraph is overcome by applicant's amended claim 1.

***Claim Rejections - 35 USC § 102***

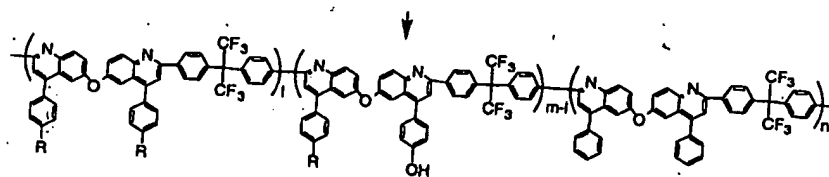
4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

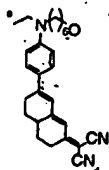
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-6, 8-12 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Jen et al., "Polyquinolines: Multifunctional Polymers for Electro-optic and Light-Emitting Applications".

The reference discloses the use of a non-linear optical chromophore with the following structure



where R is

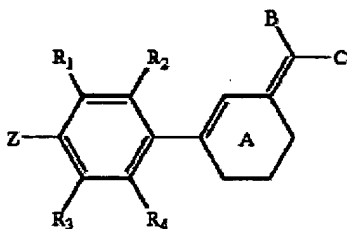


The structure listed above and found in the reference reads on compound represented in the instant claims when B and C are cyano; A is a substituted cyclohexene and Z is an electron donating group,  $\text{-N(ethyl)(CH}_2\text{)}_6\text{-O}$  per instant claims 1-3. The chromophore can be used in the luminescent layer of a light-emitting device that comprises an indium tin oxide substrate on to a top electrode (see page 473). Additionally, the reference discloses that CuPc is used in the hole injection/transport layer (see page 476). Also, page 477 of the reference discloses a multilayer light emitting diode comprising a cathode. Figures 5 and 6 on page 477 of the reference disclose  $\text{Alq}_3$  in the organic electroluminescent layer. An electron-transporting layer is disclosed in the reference on page 476. The reference also discloses that the organic electroluminescent layer can comprise an aromatic amine such as TPD. The reference discloses optical thin films of the polyquinolines have a thickness in the range of 1-2  $\mu\text{m}$  (see page 473). Instant claim 1 recites an electron donating group. Instant claim 1 does not limit the size of the electron donating group. Therefore, the reference reads on the instant claims when the  $\text{-N(ethyl)(CH}_2\text{)}_6\text{-O}$  (the electron donating) group is attached as a side chain because instant claim 1 does not limit the size of the electron donating group. Also, the reference reads on instant claim 8 because the claim recites that the unsubstituted alkyl has 1 to 10 carbons. The size of the electron-donating group in instant claim 8 is not limited to 1 to 10 carbon atoms only the size of the unsubstituted alkyl group (not the substituted alkyl group).

Art Unit: 1774

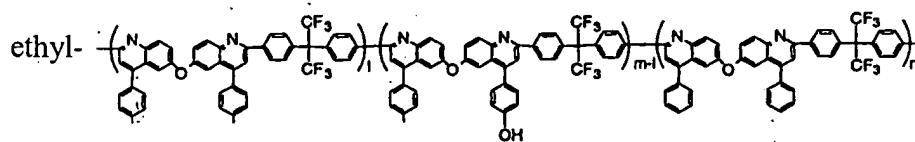
*Response to Arguments*

6. Applicant's arguments with respect to the instant claims have been considered but are moot in view of the new ground(s) of rejection. The Jen et al reference was reconsidered because instant claims 1 and 8 do not limit the size of the electron-donating group. Applicant argues that the Jen et al. reference fails to teach or suggest that the electroluminescent layer is



made of the compound

Claim 1 does not have any limitations on the size of the electron donating group. Additionally, a chromophore is an aromatic **compound**. The Jen reference reads on the instant claims when the electron donating group is -N(ethyl) (CH<sub>2</sub>)<sub>6</sub>-O. Instant claim 1 recites Z as being an electron donating group without limitations. The reference reads on the instant claims when R<sub>5</sub> is



and R<sub>6</sub> is (CH<sub>2</sub>)<sub>6</sub>-O. Also, instant claim 8 does not provide for a limitation on the size of the substituted alkyl group. The rejection is maintained.

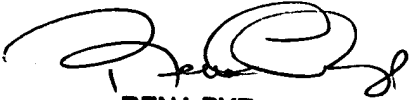
7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

Art Unit: 1774

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Camie S. Thompson whose telephone number is (571) 272-1530. The examiner can normally be reached on Monday through Friday from 7:30 am to 4:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena L Dye, can be reached at (571) 272-3186. The fax phone number for the Group is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
RENA DYE  
SUPERVISORY PATENT EXAMINER  
Art Unit 1774  
12/6/04